

Remarks:

Applicants have read and considered the Office Action dated October 29, 2008 and the references cited therein. Claims 1 and 3 have been amended. Claim 27 has been cancelled without prejudice or disclaimer. Claims 1-26 and 28 are currently pending. Reconsideration is hereby requested.

Applicants note that it appears that claims 29 and 30 have been examined. However, a Substitute Specification was filed and included only claims 1-28. Applicants assert that the PCT application claims have been erroneously examined. Applicants have included claims in this Amendment reflecting that only claims 1-28 were originally filed.

In the Action, claim 27 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Although Applicants do not acquiesce with the rejection, claim 27 has been cancelled without prejudice or disclaimer. Moreover, claim 30 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 30 was not originally filed in the National Stage application and Applicants assert that the rejection is in error and is moot.

Claims 1-3, 6-13, 17-23, 26 and 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Allais et al. in view of Quinn et al. and Bouillon et al. The Office Action states that Allais discloses a land vehicle weapon system comprising a base mount coupled with a land vehicle, a weapon mount, a plurality of weapons coupled with said weapon mount. The Action noted that Allais teaches a two cannon turret system. The Action also contends that Allais discloses a weapon mechanism coupled between the base mount and the weapon mount, the weapon moving mechanism being operable to move said weapons to a combined configuration between a transportation configuration and a static firing configuration. The

Office Action notes that at least these members combine to teach a “weapon moving mechanism” that moves the weapon from a lowered “transportation” configuration to an elevated “static firing configuration.” The Action further contends that Allais teaches a plurality of moving elements coupled with at least one of the base mount, the weapon mount, said weapons and with said weapon moving mechanism. The Action again alleges that Allais teaches multiple moving elements that are at least coupled to the base mount or weapon mount. The Action states that Allais fails to explicitly teach a sensing mechanism coupled with at least one of said weapon mount, said weapons and said base mount or a target tracking system coupled with the weapons mount or a laser designator. The Action states that Quinn et al. teaches attaching sensors such as a laser range finder to a remote weapons system and video cameras and displays used for target tracking “coupled” with the weapons mount. The Action states that it would have been obvious to one of ordinary skill in the art to combine Quinn with Allais.

Moreover, the Action states that Allais fails to teach that at least one user interface enables a user to remotely operate the weapons from within the land vehicle. The Action states that it is well known in the art to provide hardware for remote operation and that it would have been obvious to provide a user interface that allows remote operation with the system of Allais and Quinn.

In addition, the Action states that Allais fails to expressly teach that at least one of the second link and fourth are slidably coupled with the first link. The Action states that Bouillon et al. teaches a connection point for links of a weapons mount where one link slides in relation to the other and that it would have been obvious to combine Bouillon with Allais to arrive at the recited invention.

Finally, the Action states that Allais fails to explicitly teach the weapon moving mechanism is in the static firing configuration when the four bar linkage is in a substantially

triangular geometric form. The Action contends that Allais teaches the claimed components and that it would have been obvious to configure the components of Allais to substantially form any of various geometric forms including a triangle. The Action states that Bouillon teaches that linkages form substantially triangular shapes when the corresponding weapons mount is in the deployed position and refers to Figure 2. The Office Action states that it would have been obvious to combine Bouillon with Allais to arrive at the recited invention.

Applicants respectfully traverse the rejection. Applicants note that claim 1 has now been amended and clarifies which links are connected and the appropriate connections between the links. Moreover, claim 1 also recites that the weapon mount is rotatably coupled with the joint coupling the first link and the second link and that the third link is slidably coupled with the fourth link allowing the third link to slide along the fourth link. Moreover, claim 1 recites that the weapon moving mechanism is in the combined configuration where the third link slides along the fourth link with the four bar linkage forms a substantially quadrilateral geometric shape. Applicants assert that this is neither shown nor suggested by Allais, Quinn, Bouillon or any combination thereof.

The Action asserts that Allais includes the features of the four bar linkage. However, the coupling of the weapon to the four bar linkage in Allais is fundamentally different as the weapon is firmly coupled with and along one of the bars of the four bar linkage. In the system now recited in claim 1, the four bar linkage has a weapon mount rotatably coupled with the first link at the joint coupling the first link and the second link. This feature provides an additional degree of freedom to the angular elevation of the weapon mount, which is completely absent in any of the cited references. The additional degree of freedom allows the weapon mount to be elevated at an angle independently of the configuration of the four bar linkage, such as shown in Figure 6B. Applicants assert that this provides unexpected advantages for control and flexibility that is not shown nor suggested by any of the prior art or combination of prior art.

Moreover, the links of the four bar linkage in Allais are pivotally coupled with each other at the ends of each of the links. Claim 1 now clearly recites that the third link is slidably coupled with the fourth link. Therefore, the third link is allowed to slide along the fourth link and allows the four bar linkage to form a quadrilateral geometric shape when the third link slides along the fourth link in the weapon mount as a combined configuration, such as shown in Figures 5C and 5D. Such a slidable joint allows the third link to be configured so it is parallel to the fourth link as shown in Figures 8A and 8B and form a triangular geometric shape with the second link forming a side of the triangle. This triangular configuration is different than the triangular configuration formed in the static firing configuration shown in Figure 5F in which the second link and third link form the side of the triangle. Therefore, the linkage of the present system allows for a second triangular shape to be formed by the four bar linkage. Applicants assert that the recited linkage provides nonobvious differences and further advantages in performance and utility that are not possible or obvious in view of the prior art or any combination thereof.

Although the Office Action contends that Bouillon teaches a slidable coupling between the third and fourth link as now recited in claim 1, Applicants assert that the coupling of Bouillon when carefully scrutinized and properly characterized does not teach or suggest the recited coupling. As shown in Figure 2 of Bouillon, the upper ends of the arms are connected by a rod 86 which slides in slot 75. Moreover, Bouillon discloses that the tie rod 85 is provided at a lower part of the head 87 and a slidable and rectilinear guide 88 fixed to the bottom plate 83. The rods are slidable within their respective guides and slots so that the upper and lower rods in Bouillon are forced to slide together to provide the scissor-type motion of the Bouillon lever system. Conversely, the third link of the system recited in claim 1 is the only slidable link that does not depend on the other links. Claim 1 recites that the third link is slidably coupled with the fourth link and there is no need for a guide or slot or any other guiding means installed on the fourth link, which is the base mount. Applicants assert that the slidable coupling of the

third and fourth links recited in claim 1 of the present application is not shown or suggested in any prior art or combination of prior art including Bouillon.

The triangular geometric form of the four bar linkage may be formed in the static firing configuration with the second link and third link form a side of the triangle and another triangle may form when the second link alone forms a side of the triangle. The Action states that it would have been obvious to configure the components of Allais to substantially form any of various geometric forms. However, Applicants assert that such a contention has no basis and that Allais teaches a four bar linkage lifting system that forms a quadrilateral geometric shape. Applicants assert that it would not be obvious to one of ordinary skill to alter the system of Allais such that it can form a triangular geometric shape. In addition, Bouillon teaches a scissor-like lever system for lifting a weapon with each arm associated with a tie arm 85 that forms with the arm 8 an articulated scissor-like lever system as recited at column 2, lines 65-67 of Bouillon and that the cross formed by the arms 8 and the tie rods 85 is opened by means of the jack 84 as recited at column 3, lines 9-11 of Bouillon. Bouillon therefore does not teach or even suggest that the arms of the lifting system may form a triangular shape. Claim 1 recites that the weapon moving mechanism is in the static firing configuration when the four bar linkage forms a substantially triangular geometric shape. This is neither shown nor suggested by Bouillon or Allais or any combination thereof. Bouillon merely shows a lifting system in a deployed position when the arms are in an open scissor-like configuration. Such a configuration is not a triangular shape as now recited in claim 1. Applicants assert that these features of claim 1 are neither shown nor suggested by Allais, Bouillon or even Quinn. Applicants assert that claim 1 patentably distinguishes over the cited prior art or any combination thereof.

Moreover, Applicants assert that the prior art would not be combinable to arrive at the recited invention. The system of Allais is a four bar linkage that can only be configured as quadrilateral shapes. The system of Bouillon includes two arms in a scissor-like manner. Such

systems are fundamentally different and not combinable or modifiable to arrive at the recited invention. Applicants assert that any combination would not arrive at the recited system. Moreover, the addition of Quinn fails to remedy the shortcomings of the other cited references.

The changes in shape have been characterized as being within the level of ordinary skill in the art. However, the changes in shape provide unexpected results as the triangular configurations provide for combinations in unexpected ways and superior control, performance and utility. Applicants assert that such a configuration also provides for compactness and simplicity that is not possible with the prior art or any combination thereof. Applicants assert that claim 1 and claims 2, 3, 6-13, 17-23 and 26 patentably distinguish over the cited prior art and are believed to be in condition for allowance.

Claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Allais, Quinn, Bouillon and Horn et al. Applicants assert that claim 1 is believed to be allowable as discussed above. Horn fails to remedy the shortcomings of the combination of the other cited references. Therefore, Applicants assert that claim 1 patentably distinguishes over the combination of Allais, Quinn, Bouillon and Horn. Therefore, Applicants further assert that claims 4 and 5 are also believed to patentably distinguish over the same combination for at least the same reasons as well as others. Applicants therefore request that the rejection of claims 4 and 5 be withdrawn.

Claim 24 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Allais, Quinn, Bouillon and Darnall et al. Applicants assert that claim 1 patentably distinguishes over the combination of Allais, Quinn and Bouillon as discussed above and that Darnall fails to remedy the shortcomings of the combination of the other references. Applicants therefore assert that claim 1 patentably distinguishes over the combination of Allais, Quinn, Bouillon and Darnell and is therefore allowable over the cited references. Applicants therefore assert that

claim 24 is also allowable for at least the same reasons as well as others and Applicants request that the rejection be withdrawn.

Finally, claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Allais, Quinn, Bouillon and Ratliff, Jr., et al. Applicants assert that claim 1 patentably distinguishes over the combination of Allais, Quinn and Bouillon as discussed above. Applicants assert that Ratliff, Jr. fails to remedy the shortcomings of the combination of the references and that claim 1 patentably distinguishes over the combination of Allais, Quinn, Bouillon and Ratliff, Jr. Applicants further assert that claim 25 also patentably distinguishes over the combination for at least the same reasons as well as others and requests that the rejection be withdrawn.

Claim 29 was rejected as each reference teaches a land vehicle weapon system according to any of claims 1-28 substantially described. Applicants assert that claim 29 is not included in the Substitute Specification and should not have been examined. Applicants therefore assert that the rejection is moot.

Applicants assert that the claims are in condition for allowance. A speedy and favorable action in the form of a Notice of Allowance is hereby solicited. If the Examiner feels that a telephone interview may be helpful in this matter, please contact Applicants' representative at (612) 336-4728.

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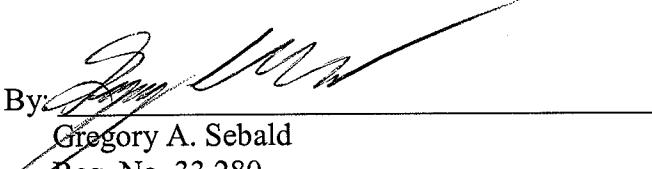
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